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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,418	11/20/2001	Joerg Sutter	10191/1860	3975

26646 7590 06/17/2003

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EXAMINER

DUDA, RINA I

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/889,418

Applicant(s)

SUTTER ET AL.

Examiner

Rina I Duda

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 and 17-21 is/are allowed.
- 6) ☒ Claim(s) 10, 11, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 04 April 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/4/03 have been fully considered but they are not persuasive. Applicant argues that the applied prior art (Ikeda et al) does not disclose that the reference voltage could be adjusted based on a predefined motor speed.

Attention is directed to column 10 lines 22-67 and column 11 lines 1-7 where Ikeda et al describe that the reference voltage could be adjusted depending upon the measured speed being below a predefined value/range of values. Therefore claims 10, 11, 15, and 16 stand rejected. Based on the amendment to claims 12-14 and 17-21 and figure 1, the objections to said claims and drawings are withdrawn.

2. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Ikeda et al fail to specifically describe that back emf/induced voltage is measured from floating/off motor windings, but one person skilled in the art knows that in order to control the phase advance of an electric motor the switches controlling the different motor phases are turned on and off, when the switches are turned off, an induced voltage is created in the floating/off phase and said induced voltage (back-emf)

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is used to determine the position/speed of the motor. Therefore, Heeren et al was introduced to show that said practice is known.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-11 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al (US Patent 5640073) and Heeren et al (US patent 6078158).

Claim 10, Ikeda et al teach a method for commutating/driving a brushless DC motor 11 including stator windings 12-1, 12-2, and 12-3 fed by a multi-phase converter 15, said method comprising; detecting the moment of commutation by comparing a voltage induced (bemf voltage) in a motor winding using voltage comparators 22-21, 22-2, and 22-3 to a reference voltage V_{nout} ; and changing the reference voltage in response to a desired rotational speed (as described in column 10 lines 22-67 and column 11 lines 1-7). Ikeda et al fail to describe that the induced voltage would be taken from an un-energized winding.

However, Heeren et al describe in column 1 lines 60-67 and column 2 lines 1-20 a conventional way of commutating a multi-phase motor using induced voltage, Heeren et al describes that current is applied to two of the three motor phases (If three phase motor) leaving the third motor phase floating, the voltage seen in this floating motor

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phase is the voltage induced by the movement of the rotating magnets relative to the coil, the induced voltage is also called bmf.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the phase in which no current is applied to detect a voltage, since said un-energized motor phase can provide a voltage measurement indicative of the speed/position of the motor.

Claims 11 and 15, the power switches in converter 15 will be turn "on" or "off" to obtain a desired current/voltage signal, wherein said desired current/voltage signal will be based on the command speed, as described in column 9 lines 41-67.

Claim 16 is rejected for the same reason given above with respect to claim 11, furthermore Ikeda et al describes control unit 18, which is responsible for turning "on" and "off" the power switches which are connected to the motor windings in order to select/discriminate which phase will be energized or unenergized at a time; means 24 for changing the reference voltage in accordance with a specific speed signal; and means 23 for supplying a manipulated variable to means 24 as a function of the desired motor speed.

Allowable Subject Matter

5. Claims 12-14 and 17-21 are allowed over prior art.

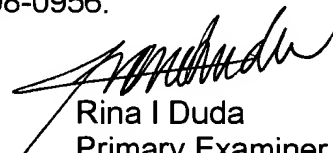
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6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rina I Duda whose telephone number is 703-305-0722.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached at 703-308-3370. The fax phone numbers for the organization where this application or proceeding is assigned is 703-308-7722 for regular communications and After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Rina I Duda
Primary Examiner
Art Unit 2837